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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,996	12/11/2001	Robert Joseph Bestgen	ROC920010239US1	3383

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EXAMINER

LEWIS, CHERYL RENE A

ART UNIT	PAPER NUMBER
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2177

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/014,996	Applicant(s) BESTGEN ET AL.	
	Examiner Cheryl Lewis	Art Unit 2177	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. Claims 1-20 are presented for examination.

DRAWINGS

2. The applicant's formal drawings submitted on December 11, 2001 have been approved by the draftsman.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Celis et al. (Pat. No. 6,021,405 filed December 11, 1996, hereinafter Celis) and Selfridge et al. (Pat. No. 5,999,192 filed April 30, 1996, hereinafter Selfridge).

5. Regarding Claims 1, 5, 10, and 14, Celis teaches a system and method for optimizing database queries with improved performance enhancements.

The method and associated system for optimizing database queries with improved performance enhancements as taught or suggested by Celis includes:

at least one processor (figure 2, element 152 'Query Processor'); a memory (figure 1, element 109, col. 10, lines 50-52) coupled to a processor (figure 1, element 111, col. 10, lines 50-52); a database (figure 1, element 102, col. 9, lines 49-67, col. 10, lines 1-15) residing in the memory (col. 9, lines 60-67, col. 10, lines 1-10) and optimizer (figure 2, element 120, col. 10, lines 8-21) residing in the memory and executed by a processor (col. 10, lines 8-21), a database query optimizer (Abstract, lines 1-4) that generates a query (Abstract, lines 1-4); the optimizer analyzing (col. 10, lines 11,

element 120) and generating an expression (Abstract, lines 10-14, col. 4, lines 66-67, col. 5, lines 1-6), the optimizer (col. 10, lines 11, element 120) generating an execution plan for the expression (col. 2, lines 55-64, col. 10, lines 9-49, '...query optimizer 120 that contains data structures and modules for generation a plan that optimizes the input query...' the execution plan comprising a plurality of execution plans (col. 10, lines 10-49, 'an Optimize Group task module...an Optimize Expression task module..a Create Plan task module...).

However, Celis does not expressly teach generating from the expression a graph that includes at least one node and different portions of a graph and graph builder means.

Selfridge teaches generating from the expression (col. 18, lines 14-43) a graph (Abstract, lines 2-10, '...directed graphs...') that includes at least one node (Abstract, lines 2-10, '...Nodes in the directed graphs represent operations on data...') and different portions of a graph (Abstract, lines 1-10, '...the root of the graph is a node representing a data set and an edge leading from a first node to a second node indicates that the operation represented by the second node is performed...') and graph builder means (col. 5, lines 64 and 65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the query optimization method of Celis with the query optimization method of Selfridge's method because Selfridge's query optimization method provides a graphical user interface via a display window that enables a user to direct operations of a directed graph of one or more nodes and edges, with each node

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representing an operation on the data and with an edge indicating that the node the edge comes from is a source of data for an operation, further the graphical user interface permits the user to edit a graph by determining whether a node of a given class can be added at that point of a graph (col. 3, lines 6-30).

6. Regarding Claims 2, 6, 11, and 17, Celis teaches the plurality of execution plans (col. 10, lines 10-49, 'an Optimize Group task module...an Optimize Expression task module..a Create Plan task module...).

Selfridge teaches types of operations appended to corresponding nodes in the graph (col. 4, lines 45-51, col. 6, lines 56-67).

7. Regarding Claims 3, 7, 12, and 18, Selfridge teaches a plan for the query by changing at least one of the plurality of operation plans (col. 15, lines 34-39) and using an existing plan for each portion of the graph that is unaffected by the change (col. 15, lines 15-33).

8. Regarding Claims 4, 8, and 19, Celis teaches a plurality of relations (col. 15, lines 65-67, col. 16, lines 1-11) and a plurality of expressions (col. 11, lines 1-17).

9. Regarding Claims 9, 13, and 20, Celis teaches the query to estimate which of the plurality of execution plans will be executed in the least amount of time (col. 10, lines 30-55).

10. Regarding Claims 15 and 16, Selfridge teaches the recordable media and transmission media (col. 11, lines 55-58).

CONCLUSION

11. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

A. Du et al. (U.S. Pat. No. 5,694,591) discloses reducing query response time using tree balancing;

B. Levy et al. (U.S. Pat. No. 6,088,524) discloses a method and apparatus for optimizing database queries involving aggregation predicates;

C. Krishna (U.S. Pat. No. 6,138,111) discloses a cardinality-based join operation;

D. Graefe et al. (U.S. Pat. No. 6,122,644) discloses a system for Halloween protection in a database system.

NAME OF CONTACT

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheryl Lewis whose telephone number is (703) 305-8750. The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (703) 305-9790. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

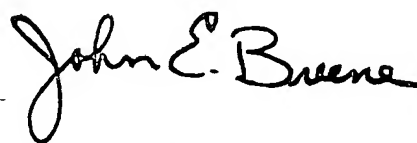
(703) 746-5651 (Use this FAX #, only after approval by Examiner, for "INFORMAL" or "DRAFT" communication. Examiners may request that a formal paper/amendment be faxed directly to them on occasions.).

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



Cheryl Lewis
Patent Examiner
March 15, 2004



JOHN BREENE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100